Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of producing embryonic or stem-like cells~~, wherein said cells comprise a nucleus derived from an adult differentiated cell and mitochondria from an oocyte of a species other than adult differentiated cell,~~ comprising the following steps:

(i) inserting a differentiated human or mammalian cell or cell nucleus into an enucleated animal oocyte, wherein such oocyte is derived from a different animal species than the human or mammalian cell or cell nucleus under conditions suitable for the formation of a nuclear transfer (NT) unit;

(ii) activating the resultant nuclear transfer (NT) unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

~~(iv) disassociating said activated nuclear transfer unit; and~~

(iv) ~~isolating cells from said disassociated nuclear transfer unit~~ culturing cells from said nuclear transfer unit to obtain embryonic or stem-like cells.

2. (Currently Amended) The method of Claim 1, wherein the cell or cell nucleus inserted into the enucleated animal oocyte is a human cell or cell nucleus.

3. (Canceled)

4. (Currently Amended) The method of Claim 2, wherein said human cell or cell nucleus is an epithelial ~~cell~~, keratinocyte, lymphocyte, or fibroblast cell or cell nucleus.

5. (Currently Amended) The method of Claim 2, wherein the oocytes is ~~are~~ obtained from a mammal.

6. (Original) The method of Claim 5, wherein the animal oocyte is obtained from an ungulate.

7. (Original) The method of Claim 6, wherein said ungulate is selected from the group consisting of bovine, ovine, porcine, equine, capine, and buffalo.

8. (Currently Amended) The method of Claim 1, wherein the ~~enucleated~~ animal oocyte is matured prior to enucleation.

9. (Currently Amended) The method of Claim 1, wherein the ~~fused~~ nuclear transfer units is ~~are~~ activated *in vitro*.

10. (Currently Amended) The method of Claim 1, wherein the activated nuclear transfer units ~~are~~ is cultured on a feeder layer ~~culture~~.

11. (Original) The method of Claim 10, wherein the feeder layer comprises fibroblasts.

12. (Canceled)

13. (Currently Amended) The method of Claim 12, wherein said feeder ~~cell~~ layer comprises fibroblasts.

14. (Original) The method of Claim 13, wherein said fibroblasts comprise mouse embryonic fibroblasts.

15. (Currently Amended) The method of Claim 1, wherein the resultant embryonic or stem-like cells are induced to differentiate.

16. (Currently Amended) The method of Claim 2, wherein the resultant embryonic or stem-like cells are induced to differentiate.

17. (Original) The method of Claim 1, wherein fusion is effected by electrofusion.

18. (Currently Amended) Embryonic or stem-like cells obtained according to the method of Claim 1.

19. (Currently Amended) Human embryonic or stem-like cells obtained according to the method of Claim 2.

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Original) Differentiated human cells obtained by the method of Claim 16.

25. (Original) The differentiated human cells of Claim 24, which are selected from the group consisting of neural cells, hematopoietic cells, pancreatic cells, muscle cells, cartilage cells, urinary cells, liver cells, spleen cells, reproductive cells, skin cells, intestinal cells, and stomach cells.

26. (Withdrawn) A method of therapy which comprises administering to a patient in need of cell transplantation therapy isogenic differentiated human cells according to Claim 24.

27. (Withdrawn) The method of Claim 26, wherein said cell transplantation therapy is effected to treat a disease or condition selected from the group consisting of Parkinson's disease, Huntington's disease, Alzheimer's disease, ALS, spinal cord defects or injuries, multiple sclerosis, muscular dystrophy, cystic fibrosis, liver disease, diabetes, heart disease, cartilage defects or injuries, burns, foot ulcers, vascular disease, urinary tract disease, AIDS and cancer.

28. (Withdrawn) The method of Claim 26, wherein the differentiated human cells are hematopoietic cells or neural cells.

29. (Withdrawn) The method of Claim 26, wherein the therapy is for the treatment of Parkinson's disease and the differentiated cells are neural cells.

30. (Withdrawn) The method of Claim 26, wherein the therapy is for the treatment of cancer and the differentiated cells are hematopoietic cells.

31. (Canceled)

32. (Currently Amended) The method of Claim 1, further comprising a step (v) whereby a gene is inserted, removed, or modified in said embryonic or stem-like cells.

33. (Previously Presented) The method of Claim 32, wherein said gene encodes a therapeutic enzyme, a growth factor, or a cytokine.

34. (Original) The method of Claim 32, wherein said embryonic or stem-like cells are human embryonic or stem-like cells.

35. (Previously Presented)) The method of claim 32, wherein said gene is removed, modified, or deleted by homologous recombination.

36. (Currently Amended) ~~The method of Claim 1,~~ A method of producing embryonic or stem-like cells comprising the following steps:

(i) inserting a differentiated human or mammalian cell or cell nucleus into an enucleated animal oocyte, wherein such oocyte is derived from a different animal species than the human or mammalian cell or cell nucleus under conditions suitable for the formation of a nuclear transfer (NT) unit, and further wherein the ~~donor~~ differentiated human or mammalian cell or cell nucleus is genetically modified to impair the development of at least one of endoderm, ectoderm, and mesoderm;

(ii) activating the resultant nuclear transfer (NT) unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) culturing cells from said nuclear transfer unit to obtain embryonic or stem-like cells.

37. (Currently Amended) ~~The method of Claim 1,~~ A method of producing embryonic or stem-like cells comprising the following steps:

(i) inserting a differentiated human or mammalian cell or cell nucleus into an enucleated animal oocyte, wherein such oocyte is derived from a different animal species than the human or mammalian cell or cell nucleus under conditions suitable for the formation of a nuclear transfer (NT) unit, and further wherein the ~~donor~~ differentiated human or mammalian cell or cell nucleus is genetically modified to increase differentiation efficiency;

(ii) activating the resultant nuclear transfer (NT) unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) culturing cells from said nuclear transfer unit to obtain embryonic or stem-like cells.

38. (Currently Amended) The method of Claim 36, wherein the ~~cultured~~ nuclear transfer unit is cultured in a media containing at least one ~~capsase~~ caspase inhibitor.

39. (Canceled)

40. (Currently Amended) The method of Claim 36, wherein the ~~donor~~ differentiated human or mammalian cell or cell nucleus has been modified to alter the expression of a gene selected from the group consisting of SRF, MESP-1, HNF-4, beta-1, integrin, MSD, GATA-6, GATA-4, RNA helicase A, and H beta 58.

41. (Currently Amended) The method of Claim 37, wherein said differentiated human or mammalian cell or cell nucleus ~~donor cell~~ has been genetically modified to introduce a DNA that provides for expression of the Q7 and/or Q9 genes.

42. (Original) The method of Claim 41, wherein said gene or genes are operably linked to regulatable promoter.

43. (Currently Amended) ~~The method of Claim 1,~~ A method of producing embryonic or stem-like cells comprising the following steps:

(i) inserting a differentiated human or mammalian cell or cell nucleus into an enucleated animal oocyte, wherein such oocyte is derived from a different animal species than the human or mammalian cell or cell nucleus under conditions suitable for the formation of a nuclear transfer (NT) unit, and further wherein the ~~donor~~ differentiated human or mammalian cell or cell nucleus is genetically modified to inhibit apoptosis;

(ii) activating the resultant nuclear transfer (NT) unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) culturing cells from said nuclear transfer unit to obtain embryonic or stem-like cells.

44. (Original) The method of Claim 43, wherein reduced apoptosis is provided by altering expression of one or more genes selected from the group consisting of Bad, Bok, BH3, Bik, Blk, Hrk, BNIP3, Gim_L, Bid, EGL-1, Bcl-XL, Bcl-w, Mcl-1, A1, Nr-13, BHRF-1, LMW5-HL, ORF16, Ks-Bcl-2, E1B-19K, and CED-9.

45. (Original) The method of Claim 44, wherein at least one of said genes is operably linked to an inducible promoter.

46. (Currently Amended) A ~~mammalian somatic cell that expresses a DNA that encodes a detectable marker, the expression of which is linked to a particular~~ method of producing embryonic or stem-like cells comprising the following steps:

(i) inserting a differentiated human or mammalian cell or cell nucleus into an enucleated animal oocyte, wherein such oocyte is derived from a different animal species than the human or mammalian cell or cell nucleus under conditions suitable for the formation of a nuclear transfer (NT) unit, and further wherein the ~~donor~~ differentiated human or mammalian cell or cell nucleus expresses a DNA construct encoding a cyclin that is operably linked to a gene that encodes a detectable marker;

(ii) activating the resultant nuclear transfer (NT) unit;

(iii) culturing said activated nuclear transfer unit until greater than the 2-cell developmental stage; and

(iv) culturing cells from said nuclear transfer unit to obtain embryonic or stem-like cells.

47. (Currently Amended) The differentiated human or mammalian cell or cell nucleus cell of Claim 46, wherein the cyclin is selected from the group consisting of cyclin D1, D2, D3, B1, B2, E, A, and H.

48. (Currently Amended) The differentiated human or mammalian cell or cell nucleus cell of Claim 46, wherein the detectable marker is a fluorescent polypeptide.

49. (Currently Amended) The differentiated human or mammalian cell or cell nucleus cell of Claim 48, wherein said cell or cell nucleus is selected from the group consisting of human, primate, rodent, ungulate, canine, and feline cells.

50. (Currently Amended) The differentiated human or mammalian cell or cell nucleus cell of Claim 48, wherein said cell is a human, bovine, or primate cell.

51. (Previously Presented) The embryonic or stem-like cells of Claim 32.

52. (Previously Presented) The method of Claim 1, wherein said differentiated cell and said enucleated oocyte are phylogenetically dissimilar.

53. (Canceled)

54. (Canceled)

55. (Canceled)

56. (Canceled)

57. (Canceled)

58. (Previously Presented) The method of claim 1, wherein said cells isolated from said disassociated nuclear transfer unit are isolated from cells originating from the inner-most portion of said nuclear transfer unit.

59. (Previously Presented) An embryonic stem-like cell isolated from the inner-most portion of a nuclear transfer unit according to the method of claim 58.

60. (Currently Amended) The method of claim 1, wherein the differentiated cell or cell nucleus ~~adult cell~~ inserted into the enucleated animal oocyte is a human cell, and the enucleated oocyte is a primary oocyte.

61. (Canceled)